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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,525	05/12/2004	Chang-Lung Du	ADTP0060USA	3524

27765 7590 01/13/2006

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EXAMINER

CHIEN, LUCY P

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/709,525

Applicant(s)

DU, CHANG-LUNG

Examiner

Lucy P. Chien

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/12/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al (US 20020027634) and of Saito et al (US 20030164903) in view of the prior art (Admission).

Kang et al discloses (Figure 4) a LCD panel (140) formed within the housing (160), the LCD panel comprising a display area (above LC panel), a peripheral circuit (Figure 3, 120) formed on the LCD panel (140) and a flexible printed circuit board (112) formed on the edge of the peripheral circuit area of the LCD panel (140) and FPCB having an extending portion formed below the lower surface of the extending portion.

Kang et al does not disclose the use of an LED light mounted on the FPCB and having openings formed in the housing for the LED.

Saito et al discloses (Figure 1, Page 1, [0007]) LED's (LED1, LED2) on top of the Flexible Printed Circuit Board (PCB) where the housing would have to have an opening formed for the LED's if the FPCB extended portion formed below the lower surface of the housing disclosed by Kang et al.

It would have been obvious to one skilled in the art to modify Kang et al's display to include Saito et al's LED's to produce a low cost liquid crystal display panel with a

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flexible printed circuit board with capabilities of obtaining a uniformly bright display screen by efficiently introducing light-emitting diodes. (Saito, Page 1, [0010]).

Saito et al and Kang et al do not disclose the display area having peripheral circuit formed on the LCD panel and plurality of driver integrated circuits formed in the peripheral circuit area of the LCD panel.

The Admission (Figure 1) discloses a LCD panel (12) comprising a display area (the square box in the middle of the larger square) having peripheral circuit (24) formed on the LCD panel (12) and a plurality of driver integrated circuits (22) formed in the peripheral circuit area of the LCD panel (12).

It would have been obvious to one skilled in the art to modify Kang et al's display and Saito et al to include the admission motivated by the desire to illuminate the liquid crystal display in order to display images (Admission Page 1, [0008]).

Regarding Claim 2,

Kang et al and the Admission do not disclose the housing is a rectangular-plate reflect frame.

Saito et al discloses (Figure 1, Page 1, [0012]) that the housing is a rectangular-plate reflect-frame to enable continuous close contact between a light-emitting element such as a light-emitting diode and the light entry plane of a light guide body (Page 1, [0011]).

It would have been obvious to one skilled in the art to modify Kang et al and the admission to include Saito et al's rectangular-plate reflect-frame motivated by the

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desire to enable continuous close contact between a light-emitting element such as a light-emitting diode and the light entry plane of a light guide body. (Page 1, [0011]).

Regarding Claim 3.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Kang et al further discloses the use of a TFT-LCD panel. (Page 1, [0005]).

Regarding Claim 4.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Kang et al further discloses where the FPC board comprises of a tape carrier package. (Page 1, [0009]).

Regarding Claim 5.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Saito et al further discloses the LED backlight source of the LCD panel is used to illuminate the LCD panel. (Page 1, [00010]).

Regarding Claim 6.

In addition to Saito et al, Kang et al, and the admission as disclosed above, the admission further discloses that each driver integrated circuit (22) comprises a gate and source driver integrated circuit (22).

Regarding Claim 7.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Saito et al further discloses (Figure 1 (GLB), Abstract) a light guide body between the LCD panel and the housing to obtain an uniformly bright display panel.

Regarding Claim 8.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Saito et al further discloses (Page 1 [0007]) a plurality of electrical components formed below the lower surface of the FPC.

Regarding Claim 9.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Saito discloses wherein the extending portion of the FPCB crosses the edge of the housing and the LEDS inset into the corresponding openings of the housing. (shown below).

Regarding Claim 10.

In addition to Saito et al, Kang et al, and the admission as disclosed above, the admission (Fig. 1) discloses a plurality of driver integrated circuits (22) formed in the peripheral circuit area of the LCD panel.

Regarding Claim 11.

In addition to Saito et al, Kang et al, and the admission as disclosed above, Saito discloses the flexible printed circuit board (PCB) is connected to the edge of the peripheral circuit area by the lower surface of the extending portion. (shown below).

Response to Arguments

Applicant's arguments filed 10/25/2005 have been fully considered but they are not persuasive.

Applicant argues that "...Kang did not teach or suggest the LEDs of the FPCB would be inset into corresponding opening of the housing to be the back light source and that they didn't teach or suggest the LEDs replacing the driving IC on the flexible printed circuit board (FPCB) to a back light source or suggest the corresponding penetrating openings, which are formed in the lower surface of the mold frame, for allowing the inset LEDs to be a back light source" The Prior Art shows the FPCB but does not show it being below the LCD panel as shown in Kang. Kang shows that the Flexible Printed Circuit Board (same as the FPCB (18) of the prior art) comes from the LCD peripheral circuit area and has an extending portion that is formed below the LCD panel.

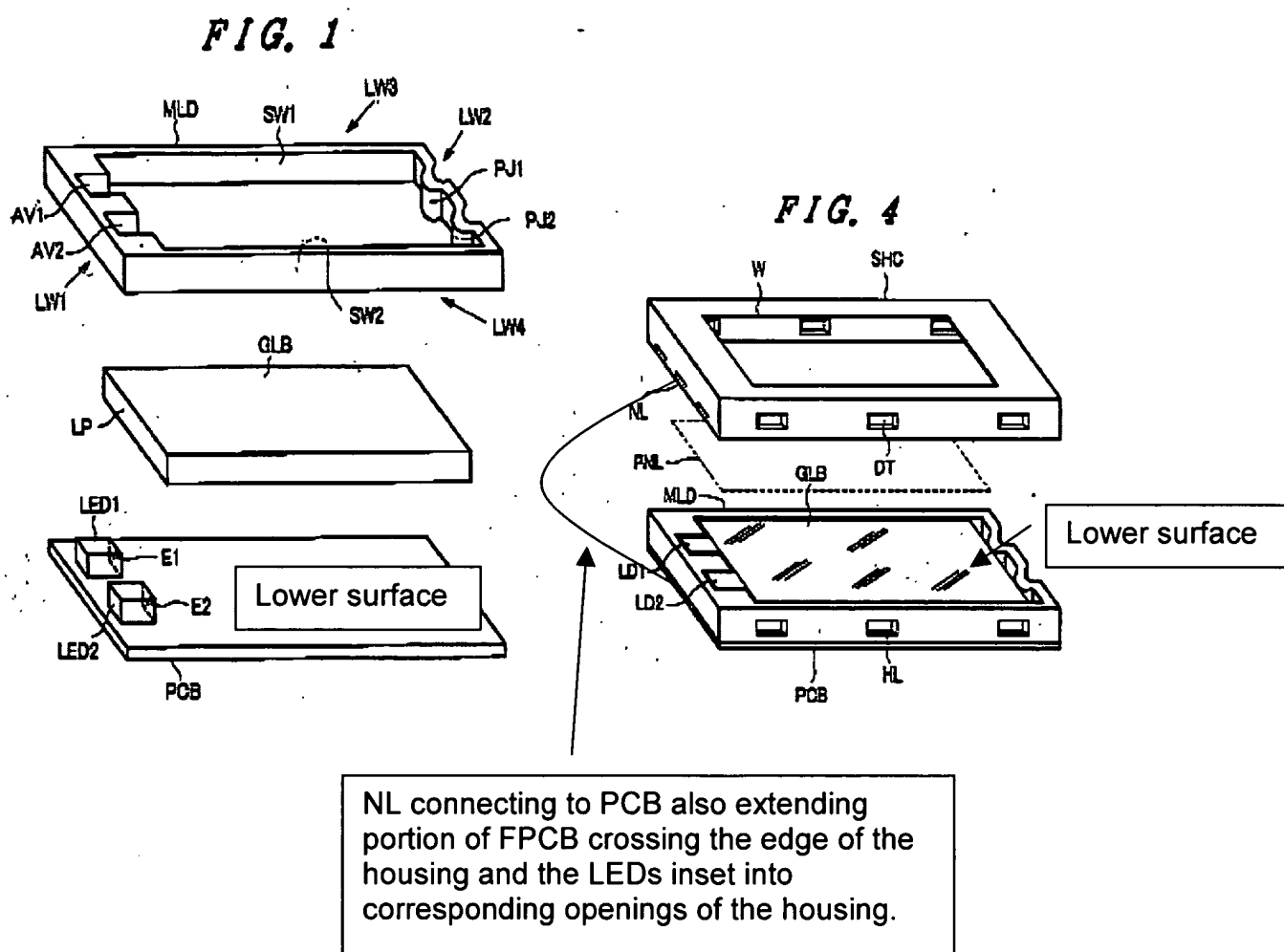
Applicant argues that Saito shows "the accommodation portions AV1,AV2 are formed in the side edge of the mold case MLD, not in the bottom." Saito shows a mold case is formed at the bottom of the LCD shown in Figure 4 (PNL).

Applicant argues that Saito teaches "the printed circuit board PCB is attached to the mold case MLD, not the LCD panel." Saito et al shows in Figure 4, the flexible printed circuit board (PCB) is connected to the LCD (PNL) (Page 4, [0048]) by the NL which is folded back towards the PCB to connect the flexible printed circuit board (PCB).

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Applicant argues regarding Claim 8 that Saito teaches “driver ICs and other electronic components are mounted on the back surface of the printed circuit board with the LEDs being mounted on the opposite face” Saito discloses that a plurality of electrical components formed below the lower surface of the FPC (shown below).

(Page 1 [0007])



Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

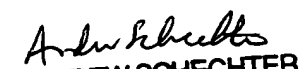
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy P. Chien whose telephone number is 571-272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucy Chien
Examiner
Art Unit 2871
LC


ANDREW SCHECHTER
PRIMARY EXAMINER